



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF APPEALS

ORIGINAL

24/ Appeal  
Brief of  
Y. Vanaman  
b/17/01

Application of:  
JOSEPH B. KEJHA  
Serial No. : 08 / 950,445  
Filed : October 15, 1997  
Title : Long Range and Ultralight  
Electric Vehicle

RECEIVED  
DEC 17 2001  
GROUP 3600

Examiner : F. Vanaman  
Art Unit : 3611

November 17, 2001

BRIEF OF APPELLANT

This is an appeal from the final rejection of the Examiner dated July 16, 2001 rejecting the claims 10-12, being all the rejected claims in the case. This brief is accompanied by the requisite fee set forth in Sec. 1.17 (f).

STATUS OF ALL CLAIMS

This application was filed on October 15, 1997 as a continuation in part of Application Serial No. 08 / 373,090 filed January 17, 1995 (now abandoned), which is related to a prior co-pending Disclosure Document of Joseph B. Kejha, Serial No. 322,973 filed on January 12, 1993.

Per Examiner's action of April 13, 1999 applicant elected on May 5, 1999 restriction of this application to Species II, claims 10-12, drawn to a vehicle powered by a hydrogen fueled engine.

Applicant filed on March 27, 2000 a continuation in part of this application, restricted to Species I, claims 1-9,13-14, and 28-34, drawn to an electrically powered cycle, Ser. No. 09/535,193. Applicant filed on September 29, 2000 a continuation in part of this Application, restricted to Species III, claims 24-25, drawn to a vehicle with parallel battery chargers, Ser. No. 09/675,377, and applicant will file a continuation in part of this

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Application , restricted to Species IV , claims 15,26-27 , drawn to a vehicle frame formed from a magnesium alloy.

Four claims (10 ,11 , 12 and 34 dependent on claims 10-12 ) of this application were rejected on July 12, 1999 , and an amendment was filed on October 12, 1999 , which canceled claim 34 and amended claims 10-12. The claims 10-12 were finally rejected on December 27, 1999.

Applicant on March 25, 2000 sent the Notice of Appeal to the Board of Appeals.

The status of the claims was as follows :

Claims allowed : none

Claims canceled : 34

Claims objected to : none

Claims rejected : 10-12

Claims pending : 10-12

Claims 10-12 rejection under 35 U.S.C. sec.112 has been withdrawn by the Examiner.

Claims 10-12 were rejected under 35 U.S.C. sec.103 as obvious over West No. 3,517,766 , Laumann at al. No. 4,112,875 , Thomson at al. No.3,554,311 , and Munday No. 5,143,125.

Applicant appealed the final rejection of claims 10-12 , and filed on May 23,2000 Brief of Appellant with Request for Oral Hearing, and with proper fees.

The Examiner in his action of November 15, 2000 in view of the applicant's persuasive Appeal reconsidered the final rejection and decided to reopen the prosecution of the Application. However , the Examiner rejected the claims 10-12 again , under

35 U.S.C.103(a) in view of Minami at al.(US 5,462,021), West (US 3,517,766) and Munday (US 5,143,125). Applicant filed an Amendment on March 14, 2001 with Petition for Extension of Time of one month, defending the claims 10-12. Applicant received Notice of Non-compliant Amendment of March 26, 2001 and responded with Letter and corrections on April 25, 2001. The claims were finally rejected by the Examiner on July 16, 2001.

Applicant on October 10, 2001 sent a Notice of Appeal to the Board of Appeals.

The status of the claims is as follows:

Claims allowed : none

Claims canceled : 34

Claims objected to : none

Claims rejected : 10-12

Claims pending : 10-12

Claims 10-12 were rejected under 35 U.S.C. sec.103 (a) as unpatentable in view of West (US 3,517,766), Minami at al. (US 5,462,021), and Munday (US 5,143,125).

Applicant appeals the final rejection of claims 10-12.

#### STATUS OF AMENDMENTS

All amendments have been entered.

## SUMMARY OF INVENTION

Applicant's invention (in this case restricted to Species II) is directed to a hydrogen fueled electric hybrid vehicle, which has a long range while being non-polluting.

In the prior art an electric hybrid vehicle has been proposed to increase the range, but the non-electric portion is not free from atmospheric pollution.

A combustion engine , which only reduces atmospheric pollution and extends the range has been also proposed, and which engine uses a hydrogen generating cell as a supplement to a conventional gasoline fuel , to improve the efficiency of the engine.

A hydrogen-oxygen gases fueled ,closed cycle combustion engine with a noble gas working fluid , and which is not open to air , and which is used in combination with a solar cells-electrolyzer and a generator as a fixed power plant has been proposed , but this system uses the above gases stored in high pressure tanks as the only energy storage , and the working fluid storage , which results in a very heavy and bulky system, not suitable for any long range vehicle. It also does not disclose an electric hybrid vehicle, or any vehicle.

As per applicant's invention, there is a great advantage in using an electric hybrid vehicle (with batteries), which is fueled by hydrogen , because the combustion engine required for an electric hybrid vehicle is approximately one third of the size required for a combustion-only driven vehicle. That means, the electric hybrid has approximately three times longer range per the same amount of hydrogen. Because compressed hydrogen, or in metal hydride storage is very bulky and /or heavy, any hydrogen fueled combustion-only vehicle would have a very limited and short range, similar to electric-only vehicles.

The electric-hybrid vehicle configuration fueled by hydrogen makes the hydrogen-electric

vehicle of the invention competitive in the range with the gasoline fueled, combustion-only vehicles , and is non-polluting. It should be noted , that the negligible amounts of nitrogen oxides generated by these vehicles can be captured by any well known catalytic converter. The range limitation of the hydrogen fueled , combustion-only, large engine vehicle is now overcome by applicant's hydrogen fueled electric hybrid vehicle with a small internal combustion engine / generator , and an electric motor with batteries. It is also a cost effective alternative to fuel cell vehicles , and this alternative will not deplete the world's supply of platinum.

The fueling of the electric hybrid vehicle with non-polluting hydrogen gas may be done on demand only for safety , by electrolysis of water carried in the vehicle , or the hydrogen may be stored in a tank , which may contain a metal hydride , or the hydrogen may be supplied from both.

Preferred embodiments of the invention are illustrated in the following example : Referring now in more detail , particularly to the drawings of this patent and Figures 1 ,2 , 3 and 6 showing two wheeled and steered electric hybrid vehicle and its systems.

The propulsion system comprises, at least one electric motor 31 behind the seat 6, which may preferably have a copper disc clutch 200 (which may be controlled by the driver by well known means) , and a reduction drive 32 preferably driving a larger rear wheel 4 through a timing belt 33, and pulleys 33A and 33B. At least one battery or batteries 96 and 97 are preferably mounted under the seat 6, or on both sides of the

rear wheel 4 (not shown), to keep the center of gravity of the vehicle low. The clutch 200 protects the motor and the batteries from an electric surge load during acceleration from standing or other shocks, and the copper material provides long wear life. The electric motor may be controlled by a variable speed controller 27, attached to the foot rest platform 8, or it may be attached to the motor 31 (not shown), or to other components. An accelerator which is electrically connected to the controller 27, may be a potentiometer 34 turned by a cable from a "wrist-twist" of the handle 14. There is no "shifting" of speeds involved. Other electrical components like electronic boards, relays, breakers, switches, fuses and distribution blocks (not shown) may be mounted in an electrical box 38, preferably behind the seat.

In addition to this "electric-only" drive, there is optionally provided at least one additional power system, comprising a small open to air internal combustion engine 87, as shown in Fig. 6, which may be a piston type reciprocating engine, rotary piston type, or a turbine, which is driving an electric current generator 104, which may be an alternator with a rectifier and voltage regulator for charging the batteries 96 and 97. The generator 104 may replace the engine flywheel to reduce the total weight, and may have a clutch 250 to enable the engine to start without the generator load. This results in a smaller, lighter and less fuel consuming engine. The engine/generator unit may be mounted on a rack or shelf 35, behind the driver's seat 6 and above the rear wheel 4, and may

be enclosed by an aerodynamic end cover enclosure 37. The shelf 35 is supported by braces 36 and 36A. The aerodynamic end cover enclosure 37 may be also sound-proofed to reduce the engine noise. It is preferred to have the engine on the very end of the vehicle for the same reason, and because the engine is usually lighter than the generator. This additional power back-up system provides for an electric-hybrid vehicle and serves as a mileage extender, or as a main cruising power supply, with batteries used only for acceleration and extra power for hill climbing. The generator should be designed for cruising power, plus extra for charging the batteries during level cruising, and for other loads. However, it is possible to drive this vehicle a shorter distance only on battery power, as a "stealth" vehicle.

To make this engine or turbine non-polluting, it should preferably be fueled by hydrogen, contained in the tank 103, which tank may also contain a metal hydride of well known type.

Since the use of hydrogen as a fuel requires precautions, it may be produced on demand only for safety reasons, by electrolysis of water, which may be produced by action of the electric current generator 104, or the hydrogen may be produced by other sources.

If electrolysis of water is used, then the hydrogen tank 103 may be replaced (or assisted) by a hydrogen generating cell 105 of well known type, which may be electrically connected to the generator 104. The water may have also an antifreeze agent added thereto.

The hydrogen generating cell 105 may also be electrically connected to a battery 109, and/or to the batteries 96 and 97, to start the system operating and also for vehicle acceleration when the demand for fuel is high. The batteries may be recharged by the generator 104 during low power cruising or standing.

A simplified schematic diagram illustrating the principles of the system is shown in Fig. 6, which is another embodiment of the invention. Switches or relays 110, 111, 112, 115 and 116 and valve 113 control the system functions as desired.

Referring now to Fig. 6 in more detail, the simplified operation of the system is as follows:

To start the engine 87, the switch 111 or switch 116 is turned "ON", which delivers direct electric current from the battery 109, or from the batteries 96 and 97 (if they still have some electric energy stored in them), to the hydrogen-oxygen generating cell 105, which produces hydrogen and oxygen gases and the gases, are delivered into the combustion chamber of the engine 87. The engine 87 is simultaneously cranked either manually, or by its own cranking battery with a starter (not shown). Because the hydrogen fuel and air, plus oxygen are being delivered into the engine, the engine starts running and also driving the generator 104. When the switch 110 is turned "ON", the direct electric current from the generator 104 is delivered to the cell 105 and adds to, or replaces the current from the batteries 109, or 96 and 97. The switches 111

and/or 116 may then be turned "OFF", which will disconnect the batteries from the cell 105.

If it is desired that the cell 105 is to be used to assist only in delivery of the fuel, then the engine 87 may be started as follows:

During cranking of the engine 87, all the switches shown are turned "OFF", but the valve 113 is opened, which delivers stored hydrogen fuel from the tank 103 into the combustion chamber of the engine 87, and the engine starts running and driving the generator 104. When the switch 110 is turned "ON", the electric current is delivered to the cell 105, which starts producing hydrogen and oxygen gases, and these gases are delivered into the engine 87, supplementing or replacing the hydrogen fuel from the tank 103. The valve 113 may then be closed. The batteries 109, 96, and 97 may also be recharged by the generator 104 when the switches 115 and 112 are turned "ON".

All the above described functions can be automated and controlled by an electronic controller (not shown), and all the switches may be replaced by relays.

All the "negative" or all the "positive" wires may be replaced by an electrically conductive frame or chassis.

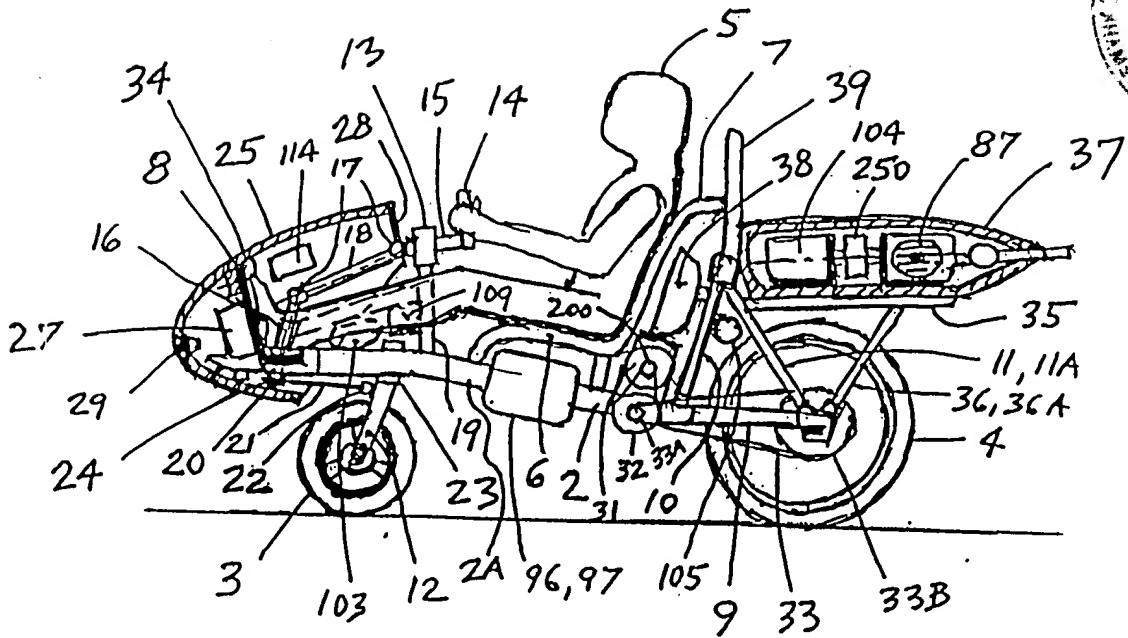


FIG. 1

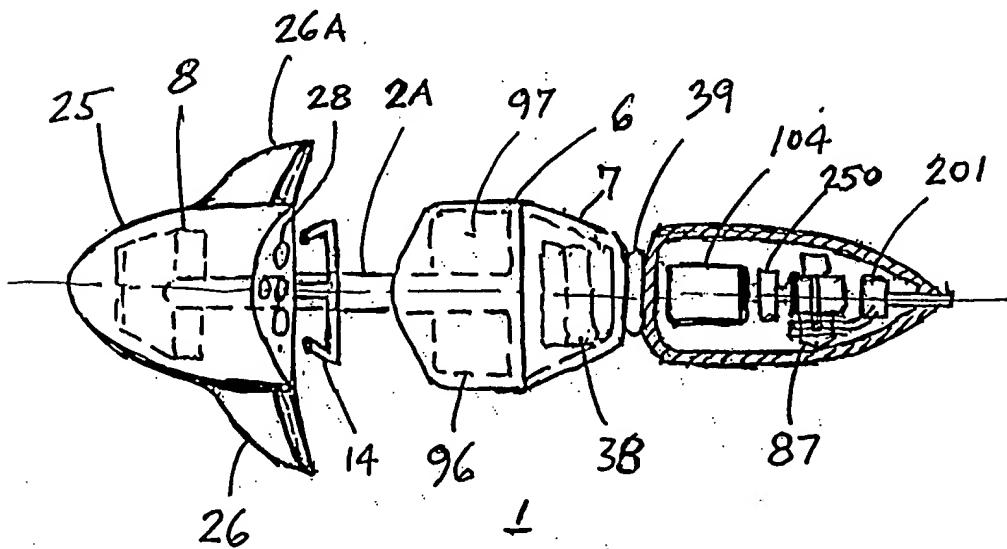


FIG. 2

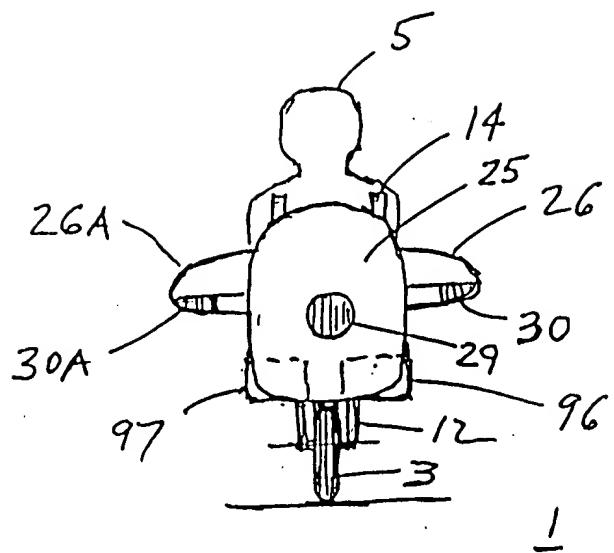


FIG. 3

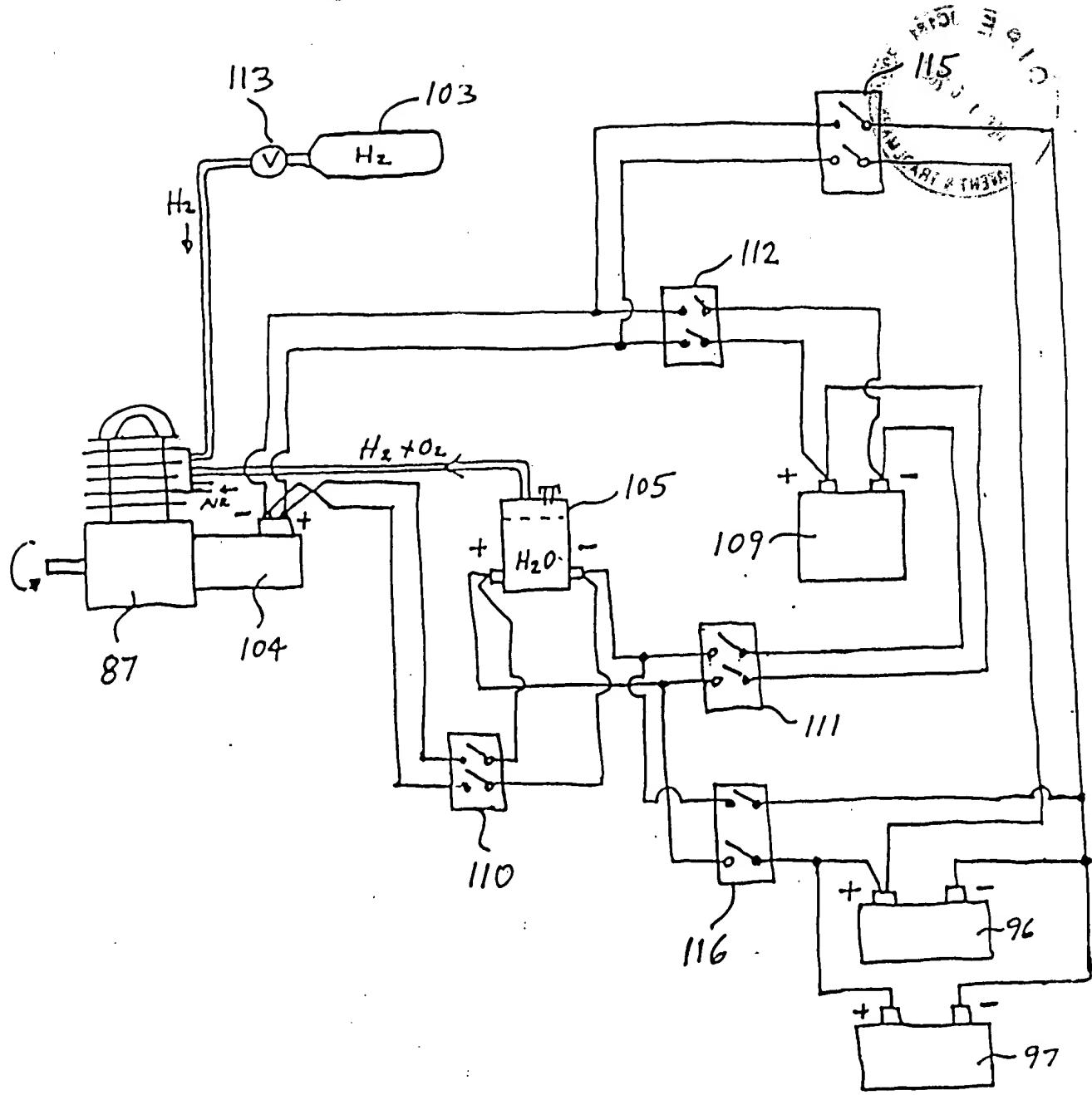


FIG. 6

## ISSUES FOR REVIEW

1. WAS THE EXAMINER'S REJECTION OF CLAIMS 10-12 UNDER  
35U.S.C. SEC. 103(a) IN VIEW OF WEST NO. 3,517,766 ; MINAMI AT AL.  
NO. 5,462,021 ; and MUNDAY NO. 5,143,125 IN ERROR ?

### GROUPING OF CLAIMS

The claims do not stand or fall together.

Claim 10 describes a two wheeled and steered electric hybrid vehicle with batteries , carrying at least one passenger, and which vehicle has at least one electric motor, and at least one electric generator which is driven by an open to air internal combustion engine , and this engine is fueled only by hydrogen from a storage system carried in the vehicle.

Claim 11 describes a two wheeled and steered electric hybrid vehicle with batteries , carrying at least one passenger , and which vehicle has at least one electric motor, and at least one electric generator which is driven by an open to air internal combustion engine , and this engine is fueled only by hydrogen , from a hydrogen generating cell by electrolysis of water carried in the vehicle , and the hydrogen generating cell is powered by the generator and / or battery , and the hydrogen is not stored under pressure.

Claim 12 describes an electric hybrid vehicle with batteries , carrying at least one passenger , and which vehicle has at least one electric motor , and at least one electric

generator which is driven by an open to air combustion engine , and this engine is fueled only by hydrogen supplied from a storage system , and /or from a hydrogen generating cell by electrolysis of water , both of which are carried in the vehicle, and the hydrogen generating cell is powered by the generator and / or a battery.

### ARGUMENT

1. The Examiner's rejection of claims 10-12 under 35 U.S.C. Sec. 103 (a) as being unpatentable in view of West , Minami at al. , and Munday was in error.

The Examiner's position is that :

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over West (US 3,517,766) in view of Minami et al. (US 5,462,021, filed 03/1993; 07/1994). West teaches a passenger vehicle which rides on 1-4 wheels (2r, 2f), and at least 2 wheels, as broadly claimed, having a body (1) an internal combustion engine (14) which is not sealed from the atmosphere, a pair of generators (16, 17) driven by the engine, a battery (10) connected to the generators and motor (11), the electric motor (11) connected to both the battery and generators, the motor for driving the vehicle, wherein the vehicle is further provided with a steering system (6, 7). The reference of West fails to teach the internal combustion engine as being fueled by hydrogen obtained from an on-board storage system.

Minami teaches a vehicle (109) which is provided with an internal combustion engine (1) which is fueled by hydrogen which is obtained from an on-board storage system (2), the use of a hydrogen engine being preferred in view of the well known "clean" emission properties of hydrogen engines (col. 1, lines 16-17). It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the internal combustion engine and fuel source of the vehicle of West with a hydrogen engine and fuel supply as taught by Minami et al. for the purpose of greatly reducing vehicle emissions, as specifically taught by Minami.

Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over West (US 3,517,766) in view of Munday (US 5,143,025). West teaches a vehicle riding on 1-4 wheels, having a body, an internal combustion engine which is not sealed from the atmosphere, a pair of generators driven by the engine, a battery connected to the generators and motor, the electric motor connected to both the battery and generators, the motor for driving the vehicle, wherein the vehicle is further provided with a steering system. The reference of West fails to teach the engine as being powered by hydrogen, the hydrogen being obtained through the electrolysis of water from a generating cell, and stored not under pressure, the cell electrically connected to the generators and battery.

Munday teaches a very low emission (col. 1, lines 1-31) vehicle engine (10) operated on a hydrogen fuel from hydrogen obtained from a hydrogen storage element (16) which directly feeds hydrogen generated by electrolysis of water in a cell (36, 40, note col. 3, lines 5-20), to the engine and stores the hydrogen under no additional pressure, the cell being electrically connected (58, 64) to a source of electricity. It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the engine and fuel source of the vehicle of West with a hydrogen engine and fuel supply as taught by Munday for the purpose of greatly reducing vehicle emissions, as specifically taught by Munday.

The reference of Munday fails to specifically teach that the electric supply be from both a generator and a battery, however, in view of the vehicle of West featuring both a battery and a pair of generators, it would have been obvious to one of ordinary skill in the art at the time of the invention to allow selective connection of the generating cell of Munday to either electricity source (i.e., the battery and/or generators), for the purpose of allowing the cell to be operative under circumstances wherein one or the other of the sources is not in operation.

#### **Response to Arguments**

Applicant's comments have been considered but are not persuasive.

As regards the reference to Minami, it appears as though applicant is attempting to rely upon a disclosure document which was filed more than two years previous to the filing of the parent application (January 12, 1993 being more than two years prior to January 17, 1995). Applicant is reminded of the following which concerns the treatment of disclosure documents:

MPEP 1706 Disclosure Documents [R-1]

\*\*>A service provided by the U.S. Patent and Trademark Office (PTO) is the acceptance and preservation for two years of "Disclosure Documents" as evidence of the date of conception of an invention.

THE PROGRAM

A paper disclosing an invention (called a Disclosure Document) and signed by the inventor or inventors may be forwarded to the PTO by the inventor (or by any one of the inventors when there are joint inventors), by the owner of the invention, or by the attorney or agent of the inventor(s) or owner. The Disclosure Document will be retained for two years, and then be destroyed unless it is referred to in a separate letter in a related patent application filed within those two years.

THE DISCLOSURE DOCUMENT IS NOT A PATENT APPLICATION, AND THE DATE OF ITS RECEIPT IN THE PTO WILL NOT BECOME THE EFFECTIVE FILING DATE OF ANY PATENT APPLICATION SUBSEQUENTLY FILED. LIKE PATENT APPLICATIONS, THESE DOCUMENTS WILL BE KEPT IN CONFIDENCE BY THE PATENT AND TRADEMARK OFFICE. [*emphasis in original*]

As regards the combination of the references to West and Minami as well as West and Munday, applicant's arguments concerning various features of the invention which are not recited in the claims are noted, but applicant is reminded that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

As regards applicant's contention (points "1" on pages 3, 4, and 5) that no reason for the desirability of the combination is set forth, applicant's attention is specifically directed to the reference of Minami at col. 1, lines 16-17 and Munday at col. 1, lines 1-31 which both disclose the desirability of the use of hydrogen fuel in internal combustion engines for the very desirable

result of lower emissions. As regards the reference of Munday not providing particular details concerning the provision of electric power, the examiner would suggest a reading of Munday at col. 4, lines 61-64, col. 5, lines 20-22, and col. 5, line 59 through col. 6, line 51. In view of Munday's description of the power system, and the use of a DC supply (note col. 6, lines 45-48, for example), it would not be considered beyond the skill of the ordinary practitioner to connect the DC operated system of Munday to a DC vehicle source as taught by West.

As regards applicant's contention (points "2" and "3") that the references fail to specifically teach the combinations, note, for example, the reference of Munday at col. 2, lines 37-39, where Munday specifically refers to the application of a hydrogen fuel system to an existing internal combustion engine, in this case that of the vehicle taught by West.

Further as regards applicant's contention that the specific combination must be suggested by the references, this is not the case. Indeed, a conclusion of obviousness may be made from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference (see *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969)), with skill being presumed on the part of the artisan, rather than the lack thereof (see *In re Sovish* 769 F.2d 738, 742, 226 USPQ 771, 774 (Fed. Cir. 1985)); further, references may be combined although none of them explicitly suggests combining one with the other (see *In re Nilssen* 7 USPQ2d 1500 (Fed. Cir. 1989)).

As regards applicant's contention of an unexpected result (point "4"), applicant has provided no evidence that an unexpected result has been achieved.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure,

such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant is also reminded that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Particularly in this case, in view of both the references of Munday and Minami teaching the desirability of the reduced emissions associated with the use of a hydrogen fuel, and with the further specific teaching in Munday which specifically refers to the application of a hydrogen fuel system to an existing internal combustion engine, these references do suggest the combination by suggesting that (1) the use of a hydrogen fuel will result in an improvement in emissions and (2) that the hydrogen fuel system may be used with existing engines.

Applicant's position is that :

The Examiner's rejection of claim 10 based on obviousness 35 USC Sec. 103 by combining prior art patents to West and Minami et al. is in error.

Applicant agrees with the Examiner , that West in U.S. patent # 5,462,021 discloses an electric hybrid vehicle , which is using a polluting gasoline engine with generators and a battery powering an electric motor to propel the vehicle ; and that Minami at al. in U.S. patent # 5,462,021 discloses a hydrogen gas supply system for a hydrogen engine.

However , West does not suggest that his vehicle is fueled by non-polluting hydrogen , and Minami does not suggest an electric hybrid vehicle with a battery , generator and electric motor , but rather only a hydrogen storage alloy and heating medium system. Minami also does not describe the open to air internal combustion engine of applicant.

Furthermore , Minami does not even remotely suggest that the short range of his system , due to the well known (at the time of the applicant's invention) weight limitation of the hydrogen storage alloy , can be overcome by an electric hybrid configuration ,as described in the applicant's specification on page 21, lines 17-26. Applicant's hydrogen electric hybrid vehicle, as described , makes the vehicle competitive in the range with polluting conventional gasoline-only vehicles , but is non-polluting.

Additionally , Minami's invention date is March 10, 1993 and applicant's invention date is January 12, 1993.

Applicant believes , that the Examiner's combination of references is improper , and is not supported by a prior invention date. Moreover , applicant does not believe that his invention as claimed in claim 10 is obvious , because nothing in the references cited by the

Examiner even remotely suggests the system of applicant. Applicant is the first to teach a novel and unobvious , long range and non-polluting hydrogen electric hybrid vehicle . The Examiner's combination of references does not meet the Applicable Court Standards.

**THE APPLICABLE STANDARDS FOR  
COMBINING REFERENCES UNDER SECTION 103**

The Patent and Trademark Office must prove a *prima facie* case of obviousness of the claimed invention.

"One of the more difficult aspects of resolving questions of non-obviousness is the necessity 'to guard against slipping into the use of hindsight.'" In re Carroll, 601 F.2d 1184, 1186, 202 USPQ 571, 572 (CCPA 1979) (quoting Graham v. John Deere Co., 383 U.S. 1, 36 [148 USPQ 459, 474] (1965)). The Patent and Trademark Office has the burden of showing that the prior art would have taught or suggested the claimed invention to one of ordinary skill in the pertinent art, In re Clinton, 527 F.2d 1226, 1228, 188 USPQ 365, 367 (CCPA 1976).

In re Shaffer, 108 USPQ 326, 229 F.2d 476 (CCPA) \ 1956) is one of many cases in which it is pointed out that for a combination of old elements to be patentable, the elements must cooperate in such manner as to produce a new, unobvious, and unexpected result, citing In re Kaufman, 39 CCPA (Patents) 769, 193 F.2d 331, 92 USPQ 141 and In re Lindberg, 39 CCPA (Patents) 866, 194 F.2d 732, 93 USPQ 23.

The Court in Shaffer said:

"Furthermore, as a general matter, in determining patentability, the concept of a new and useful improvement must be considered along with the actual means of achieving the improvement. In re Delancy, 34 CCPA (Patents) 849, 159 F.2d 737, 72 USPQ 477. In re Bisley, 39 CCPA (Patents) 982, 197 F.2d 355, 94 USPQ 80."

In determining obviousness it is necessary to determine whether the references themselves suggest the desirability of the proposed combination.

In re Bergel and Stock 292 F.2d 955, 956-7, 130 USPQ 206, 208 (CCPA 1961) and In re Grabiak 769 F.2d 729, 732, 226 USPQ 870, 872 (Fed. Cir. 1985).

And in In re Imperato, 286 F.2d 585, 179 USPQ 730 (CCPA 1973) it is stated:

"The mere fact that the disclosures of the prior art can be combined does not make the combination obvious unless the art also contains something to suggest the desirability of the combination. In re Bergel. supra."

See also Interconnect Planning Corporation v. Feil, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985).

Also, in In re Dow Chemical Co., 5 USPQ 2d 1529, (CAFC 1988) the Court said at page 1532:

"The PTO presents, in essence, an 'obvious to experiment' standard for obviousness. However, selective hindsight is no more applicable to the design of experiments than it is to the combination of prior art teachings. There must be a reason or suggestion in the art for selecting the procedure used, other than the knowledge learned from the applicant's disclosure."

Further, in In re Geiger, 2 USPQ 2d 1276 (CAFC 1987) the Court said at p. 1278:

"At best, in view of these disclosures, one skilled in the art

might find it obvious to try various combinations of these known scale and corrosion prevention agents. However, this is not the standard of 35 U.S.C. Sec. 103."

In order to establish a prima facie case of obviousness, the prior art teachings must be sufficient to suggest making the claimed apparatus. Here, there is no evidence of record which would have led one of ordinary skill at the time the invention was made to combine the prior art in the manner the Examiner proposes, to achieve applicants' structure.

There must have been a reason apparent at the time the invention was made to the person of ordinary skill in the art for applying the teaching at hand, in the manner proposed or the use of the teaching as evidence of obviousness will entail prohibited hindsight. In re Nomiya, 509 F.2d 566, 184 USPQ 607, 613 (CCPA 1975).

Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." In re Keller, 642 F.2d 413, 415 208 USPQ 871, 881 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

See also:

In re Donovan and Ryan, 184 USPQ 414 (CCPA 1975)

In re Regel, Buchel and Plempel, 526 F.2d 1399, 188 USPQ 136 (CCPA 1976)

Ex parte Shepard and Gushue, 188 USPQ 563 (1974)

In re Reinhart 531 F.2d 1048, 189 USPQ 143 (CCPA 1976)

In Ex parte Thompson, 184 USPQ 558, the board, in considering a Section 103 rejection stated that it would not be obvious to substitute an element of a first reference for an element of a second reference, since to do so would destroy the apparatus of the second reference for its intended purpose.

See also:

Ex parte Hartman, 186 USPQ 366 (1974)

In re Meng and Driessen, 492 F.2d 843, 181 USPQ 94 (CCPA 1974) states:

"As we said in In re Shuman, 53 CCPA 1251, 361 F.2d 1008, 1012, 150 USPQ 54, 57 (1966) references must be evaluated by ascertaining the facts fairly disclosed therein as a whole."

The CAFC in a recent case set forth the proper inquiry for evaluating references as:

References must be considered for all that they teach. W.L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed. Cir. 1983) cert. denied, 469 U.S. 851 (1984).

See also In re Fritch, 23 USPQ 2d 1780 (CAFC 1992).

In combining references, the Examiner did not and could not:

1. Find any suggestion of the desirability of the proposed combination;
2. Find any suggestion for combining the references in the references themselves;
3. Find any suggestion for combining the references taken as a whole of the structures claimed;
4. Find the actual structures as claimed and employed to achieve a new and unexpected result.

The Examiner's rejection of claim 11 as being unpatentable over prior art U.S. patents of West and Munday is in error.

Applicant believes that claim 11 is patentable as was discussed for claim 10 , and additionally over the patent to Munday on the grounds , that none of them even remotely suggests the combination or system of applicant , as claimed in claim 11 , or even that they can be selectively combined.

As the Examiner stated , West fails to teach an engine being fueled by hydrogen obtained from an electrolysis device , which is electrically connected to the generator and battery. Munday describes an electrolysis apparatus for fueling an engine , but does not teach an electric hybrid vehicle. West does not have the electrolysis device , and Munday does not have the electric generator , and electric motor.

Munday does not have a "hydrogen storage element" (16) , as the Examiner stated. It is a hydrogen generating cell housing. The cell uses only a battery, which battery would have to be so large and heavy , thus further limiting the vehicle range, that it would be impractical.

Applicant believes that the Examiner's combination of references to reject claim 11 does not meet the Applicable Court Standards , as described above.

In combining references, the Examiner did not and could not :

1. Find any suggestion of desirability of the proposed combination ;
2. Find any suggestion for combining the references in the references themselves ;
3. Find any suggestion in the references taken as a whole of the structure claimed ;
4. Find the actual structure as claimed and employed to achieve a new and unexpected result.

The rejection of claim 12 by the Examiner as being unpatentable over West and Munday is in error.

Applicant believes that claim 12 is patentable as discussed for claims 10 and 11 , and additionally over the patent of Munday on the grounds , that none of them even remotely suggests the combination or system of applicant , as claimed in claim 12 , or even that they can be selectively combined. West fails to teach an engine being fueled by hydrogen from any source. Munday fails to teach a hybrid electric vehicle.

Furthermore , Munday does not disclose a separate hydrogen storage tank for supplying hydrogen to the hydrogen electric hybrid system of applicant , in parallel with the Not Claimed electrolysis apparatus , as described in applicant's specification on page 22 , lines 9-12 , and as claimed in the claim 12.

Applicant believes that the Examiner's combination of references to reject claim 12 , does not meet the Applicable Court Standards , as described above.

In combining references , the Examiner did not and could not :

1. Find any suggestion of desirability of the proposed combination ;
2. Find any suggestion for combining the references in the references themselves ;
3. Find any suggestion in the references taken as a whole of the structure claimed ;
4. Find the actual structure as claimed and employed to achieve a new and unexpected result.

Although Munday suggests the well known desirability of hydrogen fuel for lower emissions , he fails to suggest the desirability of applicant's combinations for overcoming the short range of his hydrogen fueled vehicle. His teaching does not lead nor suggest to those of ordinary skills in the art applicant's desirable and unexpected result. Applicant's electric hybrid vehicle fueled by hydrogen is quite different from all of the references cited by the Examiner.

At no point in the references is an electric hybrid vehicle mentioned, which is fueled by hydrogen. The Examiner's hindsight reasoning is merely an invitation to experiment.

In response to the Examiner's prior conclusion of obviousness based on "common knowlege" and "common sense" it should be realized , that most inventions look "obvious" , after they are disclosed. Any known device can be selectively connected to any known device, but to select the right combination and to create an original and desirable feature requires vision , immagination and inventiveness. Applicant's three inventions as claimed can not be found on the record , as proposed , suggested or reduced to practice , before the time of the applicant's invention on January 12, 1993.

Applicant holds and is entitled to the benefit of the original Disclosure Document with PTO stamp and the date of conception , even if the two years were exceeded by five days. Of course, the document is not a patent application, but it is the credible evidence of the priority date. This notwithstanding , the Examiner failed to recognize , that the applicant's hydrogen electric hybrid vehicle is made not only for the purpose of the desirability of clean emissions , which

feature of hydrogen fuel is well known, but mainly for extending the hydrogen fueled vehicle range, so it can be competitive with gasoline combustion-only vehicles. This is the desirable and unexpected result , which is not suggested in any way in the Examiner's references ,nor it is suggested anywhere on the record before the time of the applicant's invention.

Prior art electric hybrid vehicles , such as the West's vehicle were made only for the purpose of extending the range of electric-only vehicle ,not to extend the range of hydrogen fueled , combustion-only vehicle.

Therefore , nobody suggested or disclosed on the record before the time of the invention, that the short range of hydrogen fueled combustion-only vehicle can be overcome by an electric hybrid configuration , as described in the applicant's specification page 21, lines 17-26. The short range of hydrogen fueled combustion-only vehicles is the main obstacle preventing their widespread use.

Accordingly, the decision of the Examiner in rejecting claims 10-12 was in error and should be reversed.

In order to establish a prima facie case of obviousness , the prior art teachings must be sufficient to suggest the making of the claimed construction. Here there is no teaching or suggestion in the prior art of record and relied upon by the Examiner, in particular West , Minami at al. , and Munday, which would have motivated one of ordinary skill in the art , at the time the invention was made , to make the many and varied modifications in the manner the Examiner proposes to obtain applicant's vehicles.

There must have been a reason apparent at the time the invention was made to the person of ordinary skill in the art for applying the teaching at hand , in the manner proposed or the use of teaching as evidence of obviousness will entail prohibited hindsight. In re Nomiya , 509 F. 2nd 566, 184 USPQ 607, 613 (CCPA 1975).

"In proceedings before the Patent and Trademark Office , the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. "

In re Piasecki , 745 F. 2nd 1468 , 1471-2 , 223 USPQ 785 , 787-88 (Fed. Cir. 1984).

The Examiner has not satisfied this burden as he has not shown any objective teachings in the prior art , specifically West , Minami at al. and Munday , which would lead one of ordinary skill in the art to make a non-polluting , long range electric hybrid vehicle with batteries , and which has an open to air combustion engine fueled only by hydrogen from a storage system , or from a hydrogen generating cell , or from both.

The Examiner has not shown that knowlege generally available to one of ordinary skill in the art would have lead that individual to obtain the vehicles as described.

Accordingly, the Examiner has failed to meet the burden of establishing obviousness and should be reversed.



### CONCLUSION

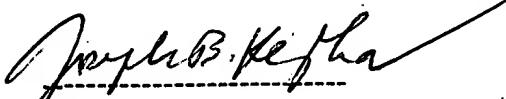
The Examiner has not made a prima facie case of obviousness because electric hybrid vehicles as described having open to air combustion engine fueled by hydrogen from a storage system , or from a hydrogen generating cell , or from both , are not disclosed or described in the prior art patents of West , Minami at al. , and Munday.

Mainly , nobody even remotely suggested or disclosed in the prior art , that the short range of hydrogen fueled combustion-only vehicle can be overcome by an electric hybrid configuration.

Moreover, any prima facie case has been rebutted by the showings made here.

It is believed that the claims define a new , useful , and unobvious invention. Reversal of the Examiner's rejection and allowance of the claims is respectfully requested.

Respectfully submitted,

  
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## APPENDIX

## CLAIMS

10. Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one electric motor , at least one battery , at least one electric current generator for charging said battery and which is driven by an internal combustion engine , and a hydrogen storage system having hydrogen therein attached to said body , and which body rides on two wheels with a steering system attached to said body , the improvement wherein  
said engine is an open to air combustion engine and is fueled only by said hydrogen.

11. Electric vehicle construction which includes a body for carrying at least one passenger and an electric propulsion system with at least one motor , at least one battery , at least one electric current generator for charging said battery and which is driven by an internal combustion engine , and a hydrogen generating cell attached to said body, and which body rides on two wheels with a steering system attached to said body , the improvement wherein

    said engine is open to air combustion engine and is fueled only by hydrogen which is produced by electrolysis of water in said hydrogen generating cell , said cell is electrically connected to said generator and also to said battery , the hydrogen is not stored under pressure and is immediately consumed by said engine.

12. Electric vehicle construction which includes a body for carrying at least one passenger and electric propulsion system with at least one electric motor, at least one battery, at least one electric current generator for charging said battery and which is driven by an internal combustion engine, a hydrogen storage system having hydrogen therein and a hydrogen generating cell which generates hydrogen by electrolysis of water, the improvement wherein

    said engine is open to air combustion engine and is fueled only by hydrogen, the hydrogen being supplied from said storage system and from said hydrogen generating cell, said cell is electrically connected to said generator, and said cell is also electrically connected to said battery.